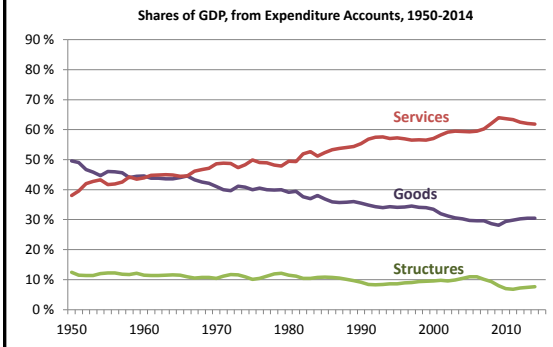
# Econ 113: April 14, 2015

- Rise of Services
  - Macroeconomic Effect
- Productivity Growth
  - Slowdown, Resurgence, Slowdown
- Banking Developments

*Term Paper due Thursday April 16*
*Last Class is Thursday April 30*

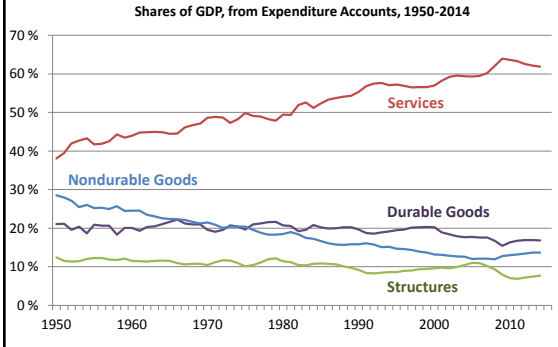


# Mix of goods & services



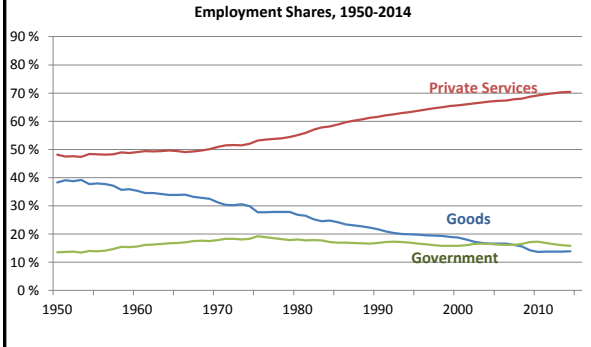



# Break out "Goods"

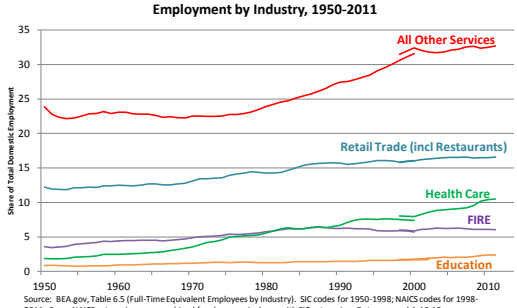





# Changes in the Labor Force



## Breaking out "Services": Employment




Source: BEA.gov, Table 6.5 (Full-Time Equivalent Employees by Industry). SIC codes for 1950-1998; NAICS codes for 1998-2011. Some NAICS categories were combined for closer equivalency with SIC categories. Data accessed 4-16-13.



## *Why the rise of services?*
## *(Rowthorn & Ramaswamy: covered in section)*

### Internal explanations

1. Productivity growth faster for manufacturing than services
   - Even if no change in demand, would see shifts in employment
2. Income elasticity of demand greater for services than goods

### External explanations

3. Trade patterns (key: southern=developing; northern=developed)
   - Cheap (southern hemisphere) labor used to produce goods
   - Imports substituted for domestic goods manufactures in northern countries
   - Result: decreased D for manufacturing labor (esp low-skill jobs) in north
   - Thus, northern hemisphere **labor** shifts to producing services



## *Changes in industries providing inputs*

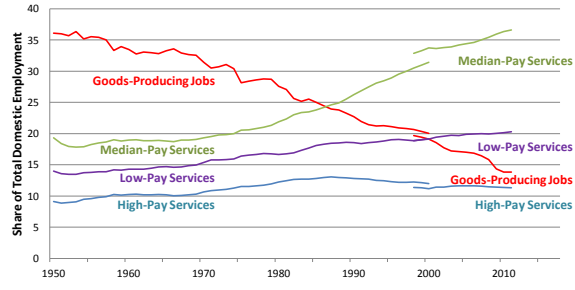
**Contributions to Output of Goods and of Services, Benchmark years, 1947 - 2007**

| | Output of Goods | | | | Output of Services | | | |
|---|---|---|---|---|---|---|---|---|
| | % of inputs that are | | | | % of inputs that are | | | |
| | Ag & Mining | Goods | Services | Value Added | Ag & Mining | Goods | Services | Value Added |
| 1947 | 13.6 | 36.2 | 11.0 | 36.3 | 2.1 | 12.2 | 20.1 | 65.1 |
| 1967 | 7.0 | 38.3 | 13.4 | 38.6 | 1.2 | 10.2 | 23.0 | 65.0 |
| 1987 | 6.5 | 33.7 | 17.3 | 42.0 | 0.9 | 8.5 | 24.6 | 65.5 |
| 1992 | 6.2 | 34.2 | 19.4 | 39.9 | 1.1 | 7.4 | 23.2 | 67.9 |
| 1997 | 6.0 | 35.5 | 24.0 | 34.1 | 0.7 | 6.1 | 25.8 | 67.0 |
| 2002 | 6.0 | 33.1 | 22.0 | 38.4 | 0.6 | 6.6 | 29.2 | 63.0 |
| 2007 | 9.5 | 33.5 | 20.7 | 35.9 | 0.8 | 7.2 | 30.4 | 61.1 |

*Source: Olney & Pacitti, "Goods, Services, and the Pace of Economic Recovery," Table 11.*

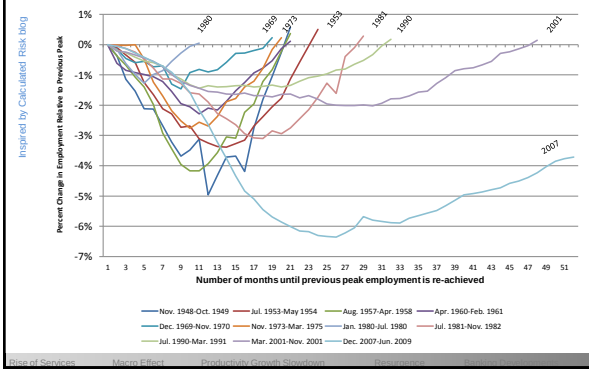


## *Relative Pay: Services vs Manufacturing*

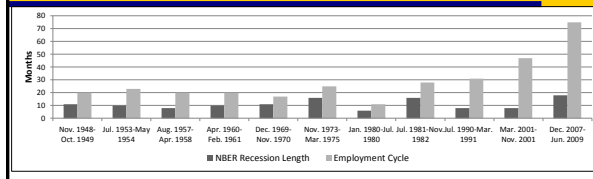


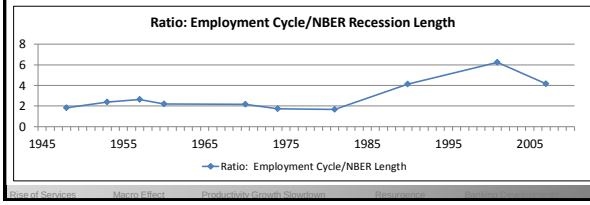

Source: Bureau of Economic Analysis, NIPA Tables 6.5 and 6.6 (accessed July 2013). SIC codes for 1950-2000; NAICS codes for 1998-2011. Categories that can be matched across SIC-NAICS transition were sorted based on wages per full-time equivalent worker in 1950 & 2011. Median-pay services fell within 5 percent of median wage: transportation, health services, and all other services. High-pay service jobs: FIRE and legal. Low-pay service jobs: retail trade and restaurants, accommodations, educators.

## *Are cycles longer in service-dependent economies?*




## *Longer & longer recoveries*




## *What might connect these two patterns?*

- Recovery requires increased production of output
  - Output = Domestic Sales of goods & of services, Foreign Sales of goods & of services, and changes in goods inventory
  -
- Anticipations channel
  - Goods can be produced in *anticipation* of ↑demand
    - Supply creates its own demand . . .
      - Goods-producers *anticipate* ↑demand, produce for inventory, pay workers, who ↑demand
      - A recovery takes hold and builds upon itself
  - Services can not be produced ahead of demand
    - Service-providers must wait for actual ↑demand. Wait. Wait. Wait.

## *Connections, continued*

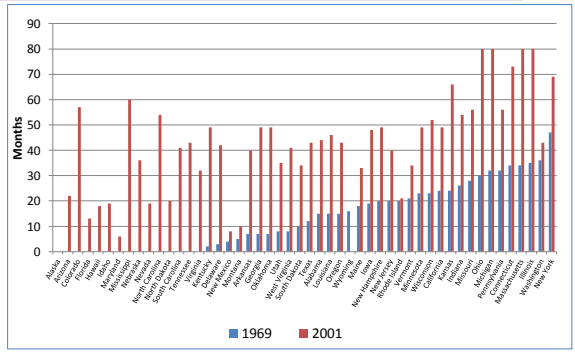
- Exports channel
  - Goods can be exported; most services cannot be exported
    - Exceptions: tourism, and international finance
    - Demand for tradables can spur economic recovery
    - As economy produces more services, tradables are smaller share
      - Reducing role for external demand
- Upshot: Recoveries will be slower to take hold in more service-dependent economies

# Empirical Strategy

- Is cycle length dependent on the share of services?
- Panel of U.S. states for 5 recessions, 1969 - 2001
  - Dependent variable: # months employment peak-to-peak
  - Key independent variable: Services/GDP, 3-yr average of (t, t-1, t-2)
  - Control for length & depth of downturn
  - Include state and year fixed effects (FE)

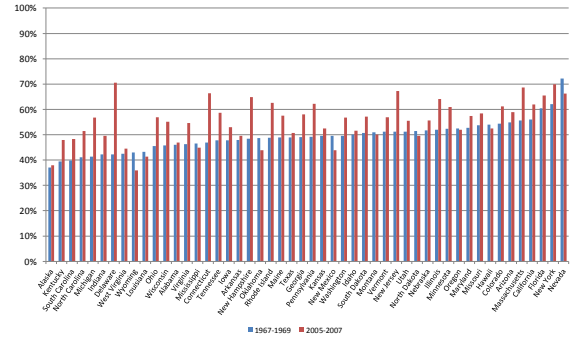


## Variation in Cycle Length by State, 1969 & 2001






## Variation in Services Share by State, 1969 & 2007






# Employment Cycle

| | OLS with Time & State Fixed Effects | | |
|---|---|---|---|
| | *Excluding States that Never Recover* | *Excluding States that Never Recover or Never Enter Recession* | *Also Excluding High Finance & High Accommodation States* |
| | (1) | (2) | (3) |
| **Service Share of GDP** | **1.029*** (0.331)** | **0.796** (0.368)** | **0.921** (0.351)** |
| Depth of downturn | 7.946*** (0.424) | 8.056*** (0.467) | 7.847*** (0.453) |
| Length of downturn | 1.233*** (0.157) | 1.211*** (0.163) | 1.367*** (0.198) |
| n | 239 | 208 | 191 |
| Recession FE | yes | yes | yes |
| State FE | yes | yes | yes |
| F-statistic | 207.7 | 152.0 | 148.8 |
| Within $R^2$ | 0.90 | 0.89 | 0.89 |

Notes: * p < 0.10, ** p< 0.05, *** p < 0.01. Robust standard errors clustered by state in parentheses. Length is residual of actual length versus predicted length. Predicted length calculated from a linear regression with time and state FE of length on depth and service share, with same data restrictions.

## *Counterfactual Exercise*

- How much longer is the recovery from 2007-2009 due simply to the rise of services over the past half century?
  - Predict cycle length using actual % services and actual depth for 2007-2009
  - Counterfactual: predict cycle length using % services from 1955-57 and actual depth for 2007-2009
  - Compute difference
- Result: Recovery from 2007-2009 downturn was about 50% longer than it would have been had downturn been in 1955

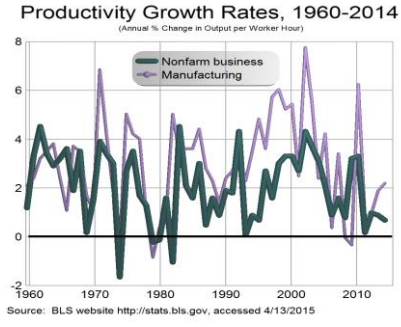


## *Growth of Living Standards*

- Living standards measured with *output per capita*
- "Extensive growth": Investment in capital (K)
- "Intensive growth": Increases in productivity
- Two measures of productivity
  1. Average Labor Productivity (ALP) = $\frac{Y}{L}$
  2. Multifactor (Total Factor) Productivity (TFP)

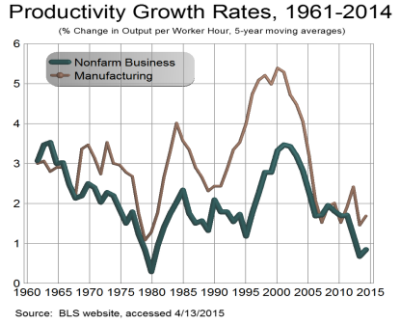


## *Productivity Growth Rates*

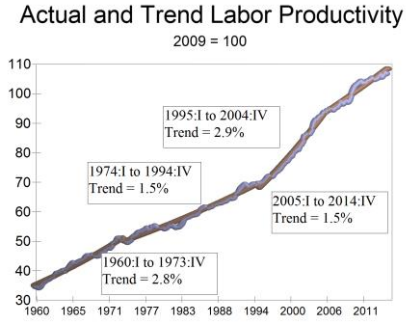





## *Let's smooth that out a bit*



## The Issue: Productivity Trends





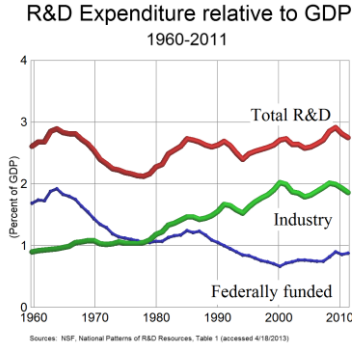

## Why the pre-1995 Slowdown?

- Important:
  - It's a slowdown in productivity growth
  - Not in productivity itself
- Sociological explanations
  - People chose to lower their productivity
- Labor Force Change explanation
  - More lower-productivity workers
    - Age
    - Gender
    - Immigration
    - Education
- But slowdown was worldwide . . .



## Why the Slowdown?

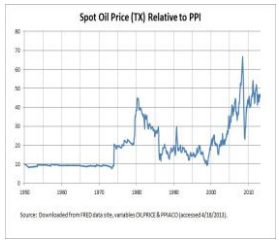
- Technological explanations
  - Low R&D spending slowed productivity growth

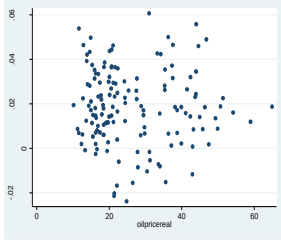





## Why Slowdown. . .

- Oil price increases of 1973
  - But no good explanation of mechanism (& little correlation)
  - Perhaps: emphasis on energy-saving capital



## *Why Slowdown. . .*

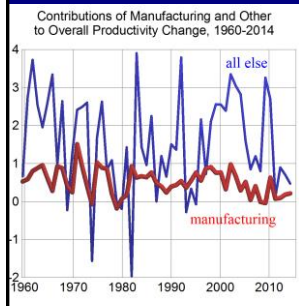
- Mix of output explanation
  - Services a greater share of output
  - But services have lower productivity growth
- Appears (next slide) focus for explanation should be on non-mfg

**Table 1. Labor Productivity Growth Rates**
Averages for 5-year periods shown

| | nonfarm business | manufacturing |
|---|---|---|
| 1960-64 | 3.1 | 3.0 |
| 1965-69 | 2.5 | 2.5 |
| 1970-74 | 2.0 | 2.7 |
| 1975-79 | 1.8 | 2.7 |
| 1980-84 | 1.4 | 2.7 |
| 1985-89 | 1.5 | 2.9 |
| 1990-94 | 1.8 | 2.9 |
| 1995-99 | 2.3 | 5.1 |
| 2000-04 | 3.4 | 4.7 |
| 2005-09 | 1.7 | 1.5 |
| 2010-14 | 1.2 | 2.4 |



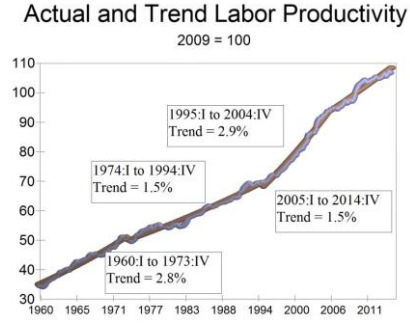
## *Swings in Productivity not from Mfg*




- Break overall productivity growth rate into two pieces
  1. Part attributable to manufacturing (mfg share of GDP * mfg productivity growth)
  2. All else
- It's swings in "all else" that create slowdown & resurgence



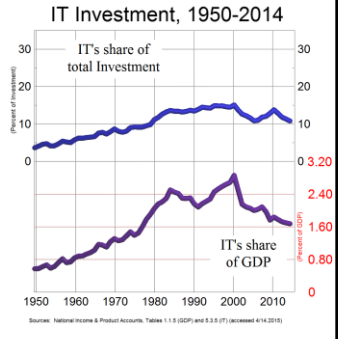
## *The (whoops! Temporary) Resurgence*






## *Why the Resurgence?*

- Consensus: Information technology
- Production & technological gains
  - affects TFP (A)
  - Accounts for about 2/3 of gain in productivity growth
- Use ("capital-deepening")
  - affects Y/L
  - Accounts for about 1/3 of gain in productivity growth



## An FYI: Astounding Differences

**Table 2. Rate of Change of Labor Productivity**

| | | | Retail Trade (Services) Industries | | | | | |
|---|---|---|---|---|---|---|---|---|
| | nonfarm business | manufacturing | Manufacturing: Computer and electronic products | Electronics and appliance stores | Food and beverage stores | Clothing and clothing accessories stores | Other general merchandise stores | Electronic shopping and mail-order houses |
| 1988-89 | 1.2 | 1.8 | 4.9 | 9.6 | -1.3 | 1.9 | 3.6 | 7.9 |
| 1990-94 | 1.8 | 2.9 | 12.5 | 11.0 | -0.7 | 3.8 | 7.0 | 6.5 |
| 1995-99 | 2.3 | 5.1 | 21.2 | 15.0 | -0.5 | 6.3 | 10.0 | 18.0 |
| 2000-04 | 3.4 | 4.7 | 10.3 | 17.4 | 2.0 | 4.3 | 7.7 | 15.1 |
| 2005-09 | 1.7 | 1.5 | 3.9 | 12.5 | 1.2 | 4.7 | 2.7 | 8.1 |
| 2010-13 | 1.2 | 2.4 | 5.4 | 7.0 | 0.6 | 3.4 | 0.8 | 6.8 |



## Banking: Common Themes

- What economic concepts have been part of our discussion of banking history?



## Banking Basics

- T-accounts to think about Assets and Liabilities

| A | L |
|---|---|

- Profit (or loss) depends on
  - Revenue
  - Costs



## Financial Institutions Profits Vary

## *Pre-1970 Banking*

- Rather boring . . . Heavily regulated
- Banks vs. Savings & Loans (thrifts) vs. Credit Unions



## *Different Institutions; Different Tasks*

| Type of Institution | Types of Accounts (Bank Liability) | Lending Focus (Bank Asset) | Deposit Insurance Provided by |
|---|---|---|---|
| Commercial banks | Checking Accounts | Businesses | FDIC |
| Savings & Loans (Thrifts) | Savings Passbook Accounts | Home mortgages | FSLIC |
| Credit Unions | Savings Accounts | Small loans to members | NCUA |



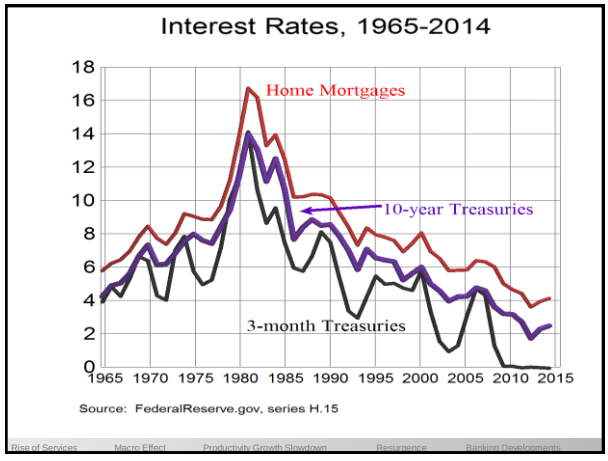
## *Pre-1970 Banking*

- Rather boring . . . Heavily regulated
- Banks vs. Savings & Loans (thrifts) vs. Credit Unions
- Bankers' hours: 10:00 a.m. - 3:00 p.m.
- No ATM machines, no internet
- No interest paid on checking deposits
  - But (regulated) interest paid on savings accounts
- Lending activity regulated
  - Limits on types of assets institutions could own
- Joke: "banking was a 3/6/3 business"



## *Post-1970 Changes*

- A series of forces led to change
  - Costs of banking rose
  - Technological developments
  - Regulatory & legislative actions
- Key to story: Rising interest rates
  - Increased to fight inflation that began late 1960s




## *Money Market Mutual Funds*

- Early 1970s
- Pool lots of people's smaller amounts of money
- Buy U.S. Treasuries with that pool of money
- Pay out (most of) the interest earned on Treasuries
- Let people withdraw funds easily (maybe with an "order of withdrawal" which looks a lot like a check)
-  Very happy customers
- Very unhappy bankers

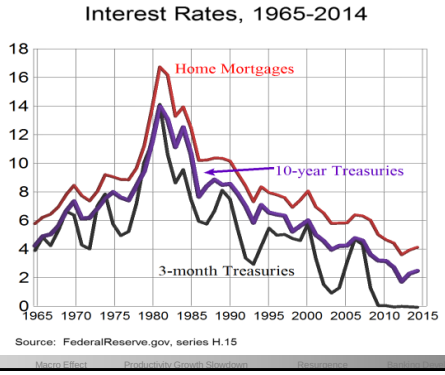
## *Paying Interest on Deposits*

- 1933 Banking Act: "no member bank *shall, directly or indirectly, by any device whatsoever, pay any interest on any deposit which is payable on demand"*
- Fed's "Regulation Q" formalized this rule
- Interest rates rising → depositor's opportunity cost rises
  - Toasters, steak knives, and other goodies
  -  What if the deposit isn't "payable on demand"?!?
    "Negotiable Order of Withdrawal" 1970s New England; 1980 throughout the U.S.; limit removed 1986
- Regulation Q fully repealed July 2011

## *Adjustable Rate Mortgages (ARMs)*

- So much for 3/6/3 banking
  - Banks now paying much higher interest rates on deposits
  - Banks need some way to earn better rate on assets
- ARMs developed 1960s; popularity begins 1980s
- Standard loan: 30-year fixed rate fully amortized loan with 20% down payment
  - Buy $125,000 house. Borrow $100,000 @ 6%
  - Pay $599.55 each month
    - Part of $599.55 is for interest on outstanding balance
    - Rest of $599.55 is for principal, reducing the outstanding balance
  - At end of 30 years, loan fully paid

## But interest rates very high 1980s




## Adjustable Rate Mortgages

- Adjustable Rate Mortgage:
  - Borrow $100,000 today at 16%
  - Initial payment $1,344.76 per month
    - Part is interest; rest is principal payment, reducing outstanding balance
  - Periodically, interest rate adjusted
  - Suppose: After 5 years, interest rate dropped to 10%
    - Then monthly payment falls to $899.42
- When rates are falling, good deal for borrower
- When rates are rising, good deal for lender

## Banks needed high return assets

- Leveraged Buyouts popular 1980s
- Borrow money (leverage) to finance buyout of firms
- If firm undervalued, then LBOs generate gains

$$P_{firm} = \frac{\sum_{life of\ firm}(Revenue - Costs)}{(1+r)^T}$$

- Issue bonds to those who lend $ for LBOs
  - High return (but high risk)
  - "Junk bonds"

## S&L Crisis

- 1980 Depository Institutions Deregulation and Monetary Control Act
  - NOW accounts nationwide; remove Reg. Q limits
  - Liabilities (Deposits) becoming more expensive
- 1982 Garn-St Germain Depository Institutions Act
  - Allows ARMs
- Mismatch between asset returns & liability costs
  - S&L's buy *lots* of junk bonds (and other assets)
- Uh oh.
  - Lots of S&Ls fail. FSLIC fails. Government bailouts.